

Listing of Claims

1-58. (Canceled).

59. (Currently Amended) An isolated human postnatal deciduous dental pulp multipotent stem cell, wherein the stem cell differentiates into a neural cell, an adipocyte, or an odontoblast, and wherein the stem cells expresses CD146 wherein the isolated human postnatal dental pulp multipotent stem cell can proliferate to over 140 population doublings.

60. (Currently Amended) The isolated human postnatal deciduous stem cell of claim 59, wherein the human postnatal deciduous dental pulp multipotent stem cell is obtained from a postnatal deciduous tooth.

61. (Currently Amended) The isolated human postnatal deciduous dental pulp multipotent stem cell of claim 59, wherein the human postnatal deciduous dental pulp multipotent stem cell expresses STRO-1, ALP, matrix extracellular phosphoglycoprotein, basic fibroblast growth factor, endostatin, or any combination thereof.

62. (Currently Amended) The isolated human postnatal deciduous dental pulp multipotent stem cell of claim 59, wherein the human postnatal deciduous dental pulp multipotent stem cell expresses CBFAI, ALP, MEPE, BSP, DSPP, or any combination thereof following mineralizing induction.

63. (Currently Amended) The isolated human postnatal deciduous dental pulp multipotent stem cell of claim 59, wherein the human postnatal deciduous dental pulp multipotent stem cell expresses CBFAI, Osterix, Osteocalcin, or any combination thereof following induction with BMP-4.

64. (Currently Amended) The isolated human postnatal deciduous dental pulp multipotent stem cell of claim 59, wherein the human postnatal deciduous dental pulp multipotent stem cell expresses nestin, β III tubulin, glutamic acid decarboxylase, neuronal

nuclei, glial fibrillary acidic protein, neurofilament M, 2',3'-cyclic nucleotide-3'-phosphodiesterase, or any combination thereof following neural induction.

65. (Currently Amended) The isolated human postnatal deciduous dental pulp multipotent stem cell of claim 59, wherein the human postnatal deciduous dental pulp multipotent cell is transfected with a nucleic acid segment.

66. (Canceled).

67. (Withdrawn and Currently Amended) A method to generate bone in an organism, comprising

implanting at least one human postnatal deciduous dental pulp multipotent stem cell of claim [[1]] 59 into the organism, thereby generating bone in the organism.

68. (Withdrawn and Previously Presented) The method of claim 67, wherein the human postnatal deciduous dental pulp multipotent stem cell is implanted after mineralizing induction or induction with BMP-4.

69. (Canceled).

70. (Canceled).

71. (Withdrawn and Previously Presented) The method of claim 67, wherein the human postnatal deciduous dental pulp multipotent stem cell is implanted to reduce or ameliorate trauma within the organism.

72. (Withdrawn and Previously Presented) The method of claim 71, wherein the trauma is a bone degenerative disease or a physical injury.

73. (Withdrawn and Previously Presented) The method of claim 72, wherein the bone degenerative disease is osteoporosis.

74. (Withdrawn and Previously Presented) The method of claim 72, wherein the physical injury is due to joint replacement, hip replacement, or root canal.

75. (Withdrawn and Previously Presented) The method of claim 67, wherein the human postnatal deciduous dental pulp multipotent stem cell has been expanded ex vivo.

76. (Withdrawn and Previously Presented) The method of claim 67, wherein the human postnatal deciduous dental pulp multipotent stem cell is implanted in combination with a carrier.

77. (Withdrawn and Previously Presented) The method according to claim 76, wherein the carrier comprises hydroxyapatite, tricalcium phosphate, or hydroxyapatite and tricalcium phosphate.

78. (Withdrawn and Currently Amended) A method to produce human neural tissue comprising implanting at least one human postnatal deciduous dental pulp multipotent stem cell of claim [[1]] 59 in a subject, thereby producing neural tissue.

79. (Canceled).

80. (Withdrawn and Previously Presented) The method of claim 78, wherein the human postnatal deciduous dental pulp multipotent stem cell is implanted following neural induction.

81. (Withdrawn and Previously Presented) The method of claim 78, wherein the human postnatal deciduous dental pulp multipotent stem cell is implanted into neural tissue contained within the organism.

82. (Withdrawn and Previously Presented) The method of claim 78, wherein the human postnatal deciduous dental pulp multipotent stem cell is implanted to reduce or ameliorate neural trauma within the organism.

83. (Withdrawn and Previously Presented) The method of claim 82, wherein the neural trauma is a neural degenerative disease or a physical injury.

84. (Withdrawn and Previously Presented) The method of claim 83, wherein the neural degenerative disease is Alzheimer's disease or Parkinson's disease.

85. (Withdrawn and Previously Presented) The method of claim 78, wherein the human postnatal deciduous dental pulp multipotent stem cell is expanded ex vivo.

86. (Withdrawn and Currently Amended) A method to produce human adipose tissue, comprising implanting at least one human postnatal deciduous dental pulp multipotent stem cell of claim [[1]] 59 into an organism, thereby producing human adipose tissue.

87. (Canceled).

88. (Withdrawn and Previously Presented) The method of claim 86, wherein the human postnatal deciduous dental pulp multipotent stem cell is implanted following adipocyte induction.

89. (Withdrawn and Currently Amended) A method to generate dentin, comprising implanting the human postnatal deciduous dental pulp multipotent stem cell of claim [[1]] 59 into an organism, thereby generating dentin.

90. (Withdrawn and Currently Amended) A method to generate dentin comprising
a. contacting pre-existing dentin with the human postnatal deciduous dental pulp multipotent stem cell of claim [[1]] 59, and

b. incubating the pre-existing dentin and the dental stem cell to produce treated dentin.

91. (Canceled).

92. (Withdrawn and Previously Presented) The method of claim 90, wherein the pre-existing dentin is contacted with the dental stem cell *in vitro*.

93. (Withdrawn and Previously Presented) The method of claim 90, wherein the pre-existing dentin is contained within a tooth.

94. (Withdrawn and Previously Presented) The method of claim 90, further comprising washing the dentin with a fluid.

95. (Withdrawn and Previously Presented) The method of claim 91, the fluid is water, a biological solvent, or a biological buffer.

96. (Withdrawn and Previously Presented) The method of claim 90, wherein further comprising washing the pre-existing dentin with an acid solution or a base solution.

97. (Withdrawn and Previously Presented) The method of claim 96, wherein the acid solution is selected from the group consisting of acetic acid, phosphoric acid, formic acid, sulfuric acid, hydrochloric acid, hydrofluoric acid, hydroiodic acid, nitric acid, or hydrobromic acid.

98. (Withdrawn and Previously Presented) The method of claim 96, wherein the acid solution has a concentration of between 0.01 % and 100 % acid.

99. (Withdrawn and Previously Presented) The method of claim 96, wherein the base solution comprises a base selected from the group consisting of sodium hydroxide, potassium hydroxide, or ammonium hydroxide.

100. (Withdrawn and Previously Presented) The method of claim 96, wherein the base solution has a concentration of between 0.01 % and 100 % base.

101. (Withdrawn and Previously Presented) The method of claim 90, wherein dentin is generated in response to trauma to the tooth.

102. (Withdrawn and Previously Presented) The method of claim 101, wherein the trauma is a root canal.

103. (Currently Amended) The isolated human postnatal deciduous dental pulp multipotent stem cell of claim [[1]] 59, wherein the stem cell has a higher proliferation rate than adult dental pulp cells and bone marrow stem cells.

104. (Currently Amended) The isolated human postnatal deciduous dental pulp multipotent stem cell of claim [[1]] 59, wherein the postnatal deciduous tooth is an incisor.

105. (Currently Amended) The isolated human postnatal deciduous dental pulp multipotent stem cell of claim [[1]] 59, obtained by the process of:

separating pulp from a remnant crown of a human postnatal deciduous tooth;
digesting the pulp in collagenase and dispase to form digested pulp;
producing a single cell suspension from the digested pulp; and
isolating single cells that adhere to a tissue culture surface from the single cells suspension.

106. (Currently Amended) The isolated human postnatal deciduous dental pulp multipotent stem cell of claim [[1]] 59, wherein the multipotent stem cell generates mineralized tissue following transplantation *in vivo*.

107. (Currently Amended) The isolated human postnatal deciduous dental pulp multipotent stem cell of claim [[1]] 59, wherein the cell induces bone formation following transplantation *in vivo*.

108. (Withdrawn and Currently Amended) A method for isolating a human postnatal deciduous dental pulp multipotent stem cell, comprising:

separating pulp from a remnant crown of a human postnatal deciduous tooth;

digesting the pulp in collagenase and dispase to form digested pulp;

producing a single cell suspension from the digested pulp; and

isolating single cells that adhere to a tissue culture surface from the single cells suspension;

thereby isolating the human postnatal deciduous dental pulp multipotent stem cell of claim [[1]] 59.

109. (New) An *ex vivo* expanded population of the isolated human postnatal deciduous dental pulp multipotent stem cell of claim 59.